## 119 Screening of new patient referrals for infection with transmissible strains of *Pseudomonas aeruginosa*

A.M. Jones[1], M. Dodd[1], J. Govan[2], C. Doherty[2], K. Webb[1]. [1]*Manchester Adult CF Centre, Manchester, United Kingdom;* [2]*Medical Microbiology, Edinburgh, United Kingdom*

**Introduction:** The Manchester Adult CF Centre (MACFC) provides care for adults with cystic fibrosis (CF) who live in the North West of England. The Manchester Adult CF Centre receives new patient referrals from two large paediatric CF centres in the region, a number of smaller paediatric CF centres, and occasionally other CF centres and non-CF units. As part of our ongoing microbiological surveillance program for *P. aeruginosa* cross-infection, we perform strain typing of isolates from all new patients with chronic *P. aeruginosa* infection.
**Methods:** *P. aeruginosa* isolates from sputum of patients with chronic infection at their first visit to the MACFC were sent to a national CF microbiology reference laboratory for strain typing by pulsed-field gel electrophoresis.
**Results:** 55 patients referred to MACFC between 2005–2007 were known to have chronic *P. aeruginosa* infection. 18 (32.7%) patients were found to be infected with a transmissible strain (13× LES, 3× MA, 2×other local strain). Of the referrals, 31 were from the main regional paediatric centres, of whom 12 (38.7%) were found be infected by transmissible strains (8× LES, 2× MA, 2× other local strain). One of 3 patients transferred from other adult CF centres was infected with a transmissible strain (LES strain). Five of 17 (29.4%) of patients from smaller DGH paediatric units were infected with a transmissible strain (4× LES, 1× MA strain). Neither the 3 patients referred from non-CF adult units or another patient referred form a large paediatric CF centre outside our region were infected with a transmissible *P. aeruginosa* strain.
**Conclusions:** All patients with CF should have strain typing of *P. aeruginosa* and strain typing results should be provided at referral to another CF centre.

## 120 The changing prevalence of clonal strains of *Pseudomonas aeruginosa* (Psa) at two Australian CF centres

M.W. France[1], S. Bialasiewicz[4], C. Wainwright[3], C. Coulter[2], T. Kidd[4], M. Syrmis[4], M. Nissen[3,4], T. Sloots[4], S.C. Bell[1]. [1]*Adult Cystic Fibrosis Centre, The Prince Charles Hospital, Brisbane, QLD, Australia;* [2]*Microbiology and Infectious Diseases Unit, The Prince Charles Hospital, Brisbane, QLD, Australia;* [3]*Children's Cystic Fibrosis Centre, Royal Children's Hospital, Brisbane, QLD, Australia;* [4]*Sir Albert Sakzewski Virus Research Centre, Royal Brisbane Hospital, Brisbane, QLD, Australia*

**Background:** Transmission of some strains of Psa within and across CF centres is now recognised and the clinical significance is yet to be determined. This study reviews a change in prevalence of clonal Psa at 2 CF centres between 2002 & 2005.
**Method:** Sputum samples were collected from patients with chronic Psa infection at the Royal Children's Hospital (RCH) & The Prince Charles Hospital CF Centres (TPCH) in 2002 & 2005. PCR was performed at a research laboratory.
**Results:** Sputum was collected from 124 TPCH patients in 2002 and 161 patients in 2005. Sputum was collected from 87 RCH patients in 2002 and 70 patients in 2005. 3 major clonal strains were identified ie. P2, P42 & P1. Other strains were classified as minor clonal &/or unique strains. The TPCH prevalence of P2 was 38.7% in 2002, increasing to 54.0% in 2005 and 48.3% to 48.6% at RCH. The prevalence of P42 has increased from 6.5% to 10.6% at TPCH and 13.8% to 17.1% at RCH. The prevalence of P1 has increased from 6.5% to 10.6% at TPCH and 4.6% to 5.7% at RCH. There were 44 new P2 infections at TPCH between 2002 and 2005.21 patients acquired new clonal strain infection within the TPCH centre.23 known cases were transferred into TPCH.
**Conclusions:** There has been an increase in the prevalence of all major clonal strains. Complete cohort segregation is under consideration. Study of the long-term clinical impact of clonal Psa strain infection is underway.

## 121 Clonal *Pseudomonas aeruginosa* strains and lung transplantation (LT) outcomes in CF

M.W. France[1,6], J. Courtney[1], C. Coulter[2], J. Govan[3], C. Doherty[3], F. Kermeen[4], P. Hopkins[4], K. McNeil[4], M. Al-Aloul[5], A.K. Webb[6], A. Jones[6], S.C. Bell[1]. [1]*Adult Cystic Fibrosis Centre, The Prince Charles Hospital, Brisbane, QLD, Australia;* [2]*Microbiology and Infectious Diseases, The Prince Charles Hospital, Brisbane, QLD, Australia;* [3]*Medical Microbiology, University of Edinburgh, Edinburgh, United Kingdom;* [4]*QLD Lung Transplant Unit, The Prince Charles Hospital, Brisbane, QLD, Australia;* [5]*Manchester Lung Transplant Unit, Wythenshawe Hospital, Manchester, United Kingdom;* [6]*Manchester Adult Cystic Fibrosis Centre, Wythenshawe Hospital, Manchester, United Kingdom*

**Background:** The impact of clonal Psa upon LT outcomes in CF is uncertain.
**Method:** CF patients with chronic Psa infection who have undergone LT at 2 large adult CF centres (2000–06) were identified retrospectively.
**Results:** TPCH Centre had 29 CF patients (6 clonal, 1 minor clonal, 14 unique, 6 unknown genotype, 2 without Psa) transplanted 2000–06. MACFC had 11 CF patients (7 unique Psa, 4 clonal Psa) transplanted. Median FEV1 6 months pre-transplant was 32% (13–56%) predicted for clonal Psa and 26% (15–41%) predicted for unique Psa. Median BMI 6 months pre-transplant was not different between the groups. Median intravenous (iv) antibiotic days over 12 months pre-transplant was 119 (37–297) for clonal Psa and 87 (24–331) for unique Psa. Median stay in the ICU post-operatively was 4 days (2–85) for clonal Psa and 3 days (1–34) for unique Psa. The median FEV1 6 months post-transplant was 72% predicted (32–105%) for clonal Psa and 78% predicted (44–129%) for unique Psa. Median BMI 6 months post-transplant was not different between the groups. Median iv antibiotic days at 12 months post-transplant was 19 (0–116) for clonal Psa and 22 (4–69) for unique Psa. 4 of 5 deaths post-transplant were in the clonal group.
**Conclusions:** No difference was noted in ICU stay or iv antibiotic use post-transplant. The highest mortality post-transplant was seen with clonal strains.

## 122 Treatment burden of infection with a common transmissible *Pseudomonas aeruginosa* strain in CF

E. Spencer-Clegg[1], K. Mohan[1], M.J. Ledson[1], M.J. Walshaw[1]. [1]*Regional Adult CF Unit, The Cardiothoracic Centre, Liverpool, United Kingdom*

**Introduction:** Transmissible *Pseudomonas aeruginosa* strains are becoming increasingly common in CF, and although they have been shown to confer a worse prognosis, their effect on the cost of CF care remains unknown.
**Method:** To look at this further, we compared the need for IV therapy over 12 months (2006) in a group of 127 CF patients infected by the commonest UK strain (the Liverpool Epidemic Strain, LES) with 70 patients infected by unique strains attending our large adult CF unit. The 2 groups were matched for age (LES: mean 24 years [range 17 to 51] versus 25 [17 to 49]) and lung function (mean FEV1%: 68 [20 to 111] v 75 [22 to 128]) (both P=NS).
**Results:** More patients infected with LES required IV treatment (89 v 32, $\chi^2 = 11.3$, $P < 0.001$), more of this was given in hospital (81 v 26, $\chi^2 = 12.9$, $P < 0.001$), for a longer period each time (mean 14.5 days v 12.0, $P < 0.05$). Although LES patients consumed more bed days than the remainder (22.8/patient/year v 7.7, $P < 0.001$), a similar proportion required outpatient IV treatment (LES: 55 episodes in 34 patients v 33/16, P = NS), with a similar requirement for treatment days (6.2/patient/year v 5.6, p = NS). A wide range of different antipseudomonal antibiotics were used for each group both as inpatients and outpatients.
**Conclusions:** This study shows that patients infected with the commonest UK transmissible strain, LES, require more IV treatment than other CF patients, and more of this is given in hospital. Transmissible *Pseudomonas aeruginosa* strains increase the treatment burden for CF patients, emphasising the need for effective segregation strategies in CF units to prevent cross infection with such organisms.